

# Waveguide Pipe Penetration



## Description

Pipe penetrations are a waveguide beyond cut-off frequency ( high pass filters ), attenuating RF signals below the cut-off frequency

Dielectric materials such as fibreoptic cables or gases can be fed through the penetration with-out degrading the performance of an RF Shielded enclosure

Pipe penetrations are also utilized for liquids such as water ( fire suppression systems ) and oils ( hydraulics ). Since the liquids may be conductive, the attenuation of the waveguide may be reduced substantially. Therefore, the system on the interior of the shielded enclosure should be a closed system to ensure that the shielding integrity is maintained. A closed system can be achieved by utilizing metal piping with welding or soldered joints. In the case of a fire suppression system, fused sprinkler heads should be used to terminate the closed system.



## Features

Pipe penetrations can be custom made with a honeycomb waveguide insert for high frequency or gaseous applications

If metal piping is utilized on the outside of the shielded enclosure, dielectric unions must be used to maintain isolation from ground

Can be field located and installed in a bulkhead panel or modular shielded panel

Insulated pipe penetrations are available for installation where thermal differences are a concern, such as cold or hot gases

## Specifications

Materials:	Brass
Thread type :	NPT
Custom sizes:	available

Waveguide Part Number	Waveguide Nominal Size	Waveguide OD	Waveguide ID	Waveguide Length	100dB Attenuation Cut-Off Frequency
PEN-0.38	3/8"	0.675"	0.423"	4"	11GHz
PEN-0.5	1/2"	0.840"	0.546"	4"	10GHz
PEN-0.75	3/4"	1.050"	0.742"	4"	6.6GHz
PEN-1.00	1"	1.063"	1.315"	4"	5.2GHz
PEN-1.25	1 1/4"	1.660"	1.368"	4 1/2"	4GHz
PEN-1.50	1 1/2"	1.900"	1.600"	6"	3.3GHz
PEN-2.00	2"	2.375"	2.063"	8"	2.6GHz
PEN-2.50	2 1/2"	2.875"	2.501"	10"	2.2GHz
PEN-3.00	3"	3.500"	3.062"	12"	1.8GHz
PEN-4.00	4"	4.500"	4.000"	16"	1.4GHz